Amendments to the Claims

The listing of claims below replaces all prior versions and listings of claims.

Listing of Claims

Claims 1-27 (Cancelled).

Claim 28 (Previously Presented): A method of transferring an electrical digital signal from a first terminal on an optical fiber to a second terminal, the electrical digital signal incoming to the first terminal, the method comprising the sequential steps of:

spreading the electrical digital signal using a spread spectrum method to produce a spread electrical signal;

modulating the spread electrical signal on a subcarrier of a radio frequency to produce a modulated electrical signal of a first frequency range around the radio frequency of the subcarrier;

adding a control digital signal of a second frequency range comprising control information to the modulated electrical signal to provide a sum signal, frequencies of the first frequency range being higher than frequencies of the second frequency range;

converting the sum signal to an optical signal;

transmitting the optical signal on the optical fiber to the second terminal to be received in the second terminal as a received optical signal; and

performing in the second terminal inverse operations on the received optical signal to provide signals corresponding to the electrical digital signal and to the control digital signal.

Claim 29 (Previously Presented): The method of claim 28, comprising the additional step of low-pass filtering the spread electrical signal before modulating.

Claim 30 (Previously Presented): A method of transferring an electrical digital signal, incoming to a first terminal, from the first terminal on an optical fiber to a second terminal, the method comprising the sequential steps, performed in the first terminal, of:

spread spectrum modulating the electrical digital signal to produce a spread spectrum modulated electrical signal;

modulating the spread spectrum modulated electrical signal on a subcarrier of a radio frequency to produce a modulated subcarrier signal of a first frequency range around the radio frequency of the subcarrier;

adding a control digital signal comprising control information to the modulated subcarrier signal;

using the modulated subcarrier signal for modulating a monochromatic light wave to produce a modulated light wave; and

transmitting the modulated light wave on the optical fiber to the second terminal;

the method comprising the further sequential steps, performed in the second terminal, of:

receiving the modulated light wave on the optical fiber;

converting the modulated light wave received on the optical fiber to a converted electrical signal;

filtering the converted electrical signal splitting it into a high frequency portion and a low frequency portion, the low frequency portion comprising a signal corresponding to the control digital signal;

demodulating the high frequency portion of the converted electrical signal at the radio frequency to produce a demodulated spread spectrum electrical signal;

spread spectrum demodulating the demodulated spread spectrum electrical signal to produce a digital electrical signal corresponding to the electrical digital signal incoming to the first terminal.

Claim 31 (Previously Presented): The method of claim 30, comprising the additional step of low-pass filtering the spread electrical signal before modulating.

Claim 32 (Currently Amended): A method of transferring an electrical digital signal from a first terminal on an optical fiber to a second terminal, the electrical digital signal incoming to the first terminal, the method comprising the sequential steps of:

modulating a first one of a control digital signal, the control digital signal comprising control information used for controlling the electrical digital signal, and the electrical digital signal on a radio frequency subcarrier; ~~and~~

modulating a second one of the control digital signal and the electrical digital signal, the second one being different from the first one, using a spread-spectrum method on a different one of radio frequency subcarriers;

adding the first and second ones to provide a sum signal;

converting the sum signal to an optical signal;

transmitting the optical signal on the optical fiber to the second terminal to be received in the second terminal as a received optical signal; and

performing, in the second terminal, inverse operations on the received optical signal to provide signals corresponding to the electrical digital signal and to the control digital signal.

Claim 33 (Previously Presented): The method of claim 32, wherein in the step of modulating a first one or in the step of modulating a second one the radio frequency subcarrier used for modulating comprises a baseband.

Claim 34 (Previously Presented): The method of claim 32, wherein, in the step of modulating the first one, the first one is modulated using TDMA.

Claim 35 (Previously Presented): The method of claim 32, wherein, in the step of modulating the second one, the second one is modulated using CDMA.

Claim 36 (Currently Amended): A network comprising at least two terminals connected by an optical fiber, a first one of the at least two terminals comprising:

spreading means to spread a first electrical digital signal using a spread spectrum method to produce a spread signal;

modulating means connected to the spreading means for receiving the spread signal and arranged to modulate the spread signal on a radio frequency subcarrier having a non-zero frequency to produce a modulated electrical signal of a first frequency range around the radio frequency of the subcarrier;

adding means connected to the modulating means for receiving the modulated electrical signal and arranged to add to the modulated electrical signal a second electrical digital signal of a second frequency range to produce a sum signal, frequencies of the first frequency range being higher than frequencies of the second frequency range ~~rang~~; and

converting means connected to the adding means for receiving the sum signal, connected to the optical fiber and arranged to convert the sum signal to an optical signal and to transmit the optical signal on the optical fiber.

Claim 37 (Previously Presented): The network of claim 36, wherein the non-zero frequency is a relatively high frequency.

Claim 38 (Previously Presented): The network of claim 36, wherein a second one of the at least two terminals comprises:

converting means connected to the optical fiber for receiving the optical signal transmitted on the optical fiber from the first one of the at least two terminals and arranged to convert a received optical signal to a converted electrical signal;

filtering means connected to the converting means for receiving the converted electrical signal and arranged to filter the converted electrical signal splitting it into a high frequency portion and a low frequency portion, the low frequency portion comprising a signal corresponding to the second electrical digital signal;

radio frequency demodulating means connected to the filtering means for receiving the high frequency portion of the converted electrical signal and arranged to demodulate the high frequency portion of the converted electrical signal at the radio frequency to produce a demodulated spread spectrum electrical signal; and

spread spectrum demodulating means connected to the radio frequency demodulating means for receiving the demodulated spread spectrum electrical signal and arranged to spread spectrum demodulate the demodulated spread spectrum electrical signal to produce a digital electrical signal corresponding to the first electrical digital signal.

Claim 39 (Previously Presented): The network of claim 36 further comprising a low-pass filter connected between the spreading means and the modulating means to low-pass filter the spread signal.

Claim 40 (Previously Presented): A network comprising at least two terminals connected by an optical fiber, a first one of the at least two terminals comprising:
spreading means to spread a first electrical digital signal using a spread spectrum method to produce a spread signal of a first frequency range;

modulating means to modulate a second electrical digital signal on a radio frequency subcarrier having a non-zero frequency to produce a modulated electrical signal of a second frequency range around the radio frequency of the subcarrier, frequencies of the first frequency range being lower than frequencies of the second frequency range;

adding means connected to the spreading means for receiving the spread signal and to the modulating means for receiving the modulated electrical signal and arranged to add the spread electrical signal and the modulated electrical signal to each other to produce a sum signal; and

converting means connected to the adding means for receiving the sum signal, connected to the optical fiber and arranged to convert the sum signal to an optical signal and to transmit the optical signal on the optical fiber.

Claim 41 (Previously Presented): The network of claim 40, wherein a second one of the at least two terminals comprises:

converting means connected to the optical fiber for receiving the optical signal transmitted on the optical fiber from the first one of the at least two terminals and arranged to convert a received optical signal to a converted electrical signal;

filtering means connected to the converting means for receiving the converted electrical signal and arranged to filter the converted electrical signal splitting it into a high frequency portion and a low frequency portion;

radio frequency demodulating means connected to the filtering means for receiving the high frequency portion of the converted electrical signal and arranged to demodulate the high frequency portion of the converted electrical signal at the

radio frequency to produce a demodulated electrical signal corresponding to the second digital electrical signal; and

spread spectrum demodulating means connected to the filtering means for receiving the high frequency portion of the converted electrical signal and arranged to spread spectrum demodulate the high frequency portion of the converted electrical signal to produce a digital electrical signal corresponding to the first electrical digital signal.

Claim 42 (Previously Presented): The network of claim 40 further comprising a low-pass filter connected between the spreading means and the adding means to low-pass filter the spread signal.

Claim 43 (Currently Amended): A method of transferring an electrical digital signal from a first terminal on an optical fiber to a second terminal, the electrical digital signal incoming to the first terminal, the method comprising the sequential steps of:

in the first terminal:

spreading the electrical digital signal using a spread spectrum method to produce a spread electrical signal;

modulating the spread electrical signal on a subcarrier of a radio frequency to produce a modulated electrical signal of a first frequency range around the radio frequency of the subcarrier;

adding a control digital signal of a second frequency range comprising control information to the modulated electrical signal to provide a sum signal, frequencies of the first frequency range being higher than frequencies of the second frequency range ~~rang~~,

converting the sum signal to an optical signal,

transmitting the optical signal on the optical fiber to the second terminal to be received in the second terminal as a received optical signal, and

in the second terminal:

converting the received optical signal to a converted electrical signal,

filtering the converted electrical signal splitting it into a high frequency portion and a low frequency portion, the high frequency portion comprising a signal

corresponding to the electrical digital signal and the low frequency portion comprising a signal corresponding to the control digital signal,

performing operations inverse of those performed in the first terminal on the high frequency portion and the low frequency portion of the converted optical signal to provide signals corresponding to the electrical digital signal and to the control digital signal.

Claim 44 (Currently Amended): A network comprising at least two terminals connected by an optical fiber, wherein

a first one of the at least two terminals comprises:

spreading means to spread a first electrical digital signal using a spread spectrum method to produce a spread signal,

modulating means connected to the spreading means for receiving the spread signal and arranged to modulate the spread signal on a radio frequency subcarrier having a non-zero frequency to produce a modulated electrical signal of a first frequency range around the radio frequency of the subcarrier,

adding means connected to the modulating means for receiving the modulated electrical signal and arranged to add to the modulated electrical signal a second electrical digital signal of a second frequency range to produce a sum signal, frequencies of the first frequency range being higher than frequencies of the second frequency range ~~rang~~, and

converting means connected to the adding means for receiving the sum signal, connected to the optical fiber and arranged to convert the sum signal to an optical signal and to transmit the optical signal on the optical fiber, and

a second one of the at least two terminals comprises:

converting means connected to the optical fiber for receiving the optical signal transmitted on the optical fiber from the first one of the at least two terminals and arranged to convert a received optical signal to a converted electrical signal, and

filtering means connected to the converting means for receiving the converted electrical signal and arranged to filter the converted electrical signal splitting it into a a low frequency portion, the high frequency portion comprising a signal

corresponding to the first electrical digital signal and the low frequency portion comprising a signal corresponding to the second electrical digital signal.

Claim 45 (Previously Presented): The network of claim 44, wherein the second one of the at least two terminals further comprises:

radio frequency demodulating means connected to the filtering means for receiving the high frequency portion of the converted electrical signal and arranged to demodulate the high frequency portion of the converted electrical signal at the radio frequency to produce a demodulated spread spectrum electrical signal, and

spread spectrum demodulating means connected to the radio frequency demodulating means for receiving the demodulated spread spectrum electrical signal and arranged to spread spectrum demodulate the demodulated spread spectrum electrical signal to produce a digital electrical signal corresponding to the first electrical digital signal.